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ON THE ANATOMY OF THE EXCITO-MOTOR SYSTEM.

By Marshall Hall, M.D., F.R.S. L. & E., &c.

THE history of the protracted disputes on this topic would be full of instruction, but it is not my present intention to write it. My object is, to lay before the reader in a few words (I am always afraid of occupying his time and my own needlessly), *the* argument, or rather, *the* plain and simple proof, of the distinct anatomy of the excito-motor system.

Does any one doubt the distinct anatomy of the system of cerebral nerves—of the nerves of sensation and volition?

The *very same* proof which exists of this part of the nervous system, exists in regard to the excito-motor system. It exists in the pneumogastric nerve, or, as it may be better designated, the pneumogastric system of nerves.

If the pneumogastric be sentient at all, it is the least sentient of all incident nerves. What is it, then? It is excito-motor! It is, emphatically, the internal, excito-motor nerve!

Why go to complex structures, when a simple one exists? Why go to the lower orders of animals, when the mammalia, and even the human being, afford us the proof we require?

The superior and the inferior laryngeals are the associated excitor and motor nerves of the larynx.

The bronchials are associated excitor and motor nerves of the bronchia.

The pharyngeals and œsophageals are the associated excitor and motor nerves of the pharynx, of the œsophagus and of the cardia.

Lastly, and most strikingly, the pulmonic part of the pneumogastric nerve is, as the associate of the diaphragmatic and intercostals, the internal excitor of respiration.

There is, in short, as I have said, the *same* proof of the distinctness of the excito-motor system of nerves, as of the sentient and voluntary, and it is both idle and ridiculous to dispute the fact any longer, or to appeal to other parts of the nervous system than the grand pneumogastric; or to other tribes of animals than the mammalia, for proofs not needed. As confirmations of a truth already established, these researches are, of course, interesting enough. I am myself preparing a paper on the pneumogastric system in animals of limited and of diffused respiration—in the mammalia; and in birds and insects. In birds, the spinal nerves are, doubtless, in their distribution to the diffused breathing cells, analogous to the

pulmonic branches of the pneumogastric. In insects, *each segment* with its spiracles (analogues of the larynx, trachea, and bronchia), is endowed with a nervous system entirely analogous to the laryngeals, and to the pulmonic branches of the pneumogastric, and the diaphragmatic or intercostals! Then we have to inquire into the nature and office of the lateral nerve in fishes. As in birds, the respiratory nerves are, probably, equally for flight and for respiration; so in fishes, the lateral nerve is, probably, for swimming and for respiration.

But to return to my topic. The proof of the distinct anatomy of the excito-motor system, is afforded by the pneumogastric—the internal, purely, or almost purely, excito-motor nerve.

If, however, we would examine other and more complicated tissues, the proof lies, not, I fear, in the dissection and tracing of fibres, but in physiological experiment: the cerebral system is, so tested, *in-excitor* throughout—in its centre, in the nerves of special sense; the excito-motor system is, in its centre, and in its incident and reflex relations, what its designation implies.

It is pitiable that there should any longer be any dispute on the subject, or that detraction should still attempt to wrest the credit of adducing the proof, in any degree, from myself, or from physiology.

Amongst other attempts of this kind, one has been to propose a change in the designation which I had given to the nerves of the reflex arc—and a most unfortunate change too. The terms incident and reflex *imply* some very definite association, or *Law-relation*, between the two—a real phenomenon of the most remarkable kind. But the terms *afferent* and *efferent* are, in this respect, utterly insignificant; whilst the meaning which these words do convey, of something borne to and from, is probably altogether erroneous.

The ray of light, which is now incident and immediately afterwards reflected, is the *same* ray, modified, directed, and returned by the reflector, whether it consist in loco-moving particles, or in vibration. The same idea is attempted to be conveyed by the terms incident and reflex nerve. There is, in these nerves, and in their connection through the spinal marrow, some extraordinary recondite connection, so that, for example, the excitation of the superior laryngeal sends forth some mysterious messenger to the medulla oblongata, whilst this returns it in the just channel, the inferior laryngeal, so as to effect the closure of the larynx; whilst the excitation of the pulmonic branches of the pneumogastric excites, through the diaphragmatic and intercostal nerves, the contraction of the muscles of inspiration, precisely, definitely, and no other.

The ordinary reflection of a ray of light, or the polarization of a ray of light, is not more definite.

The effect produced is obviously *designed*, not by the animal—for its brain may be removed without interfering with this process—but by an omniprovident Creator. This obvious design has misled many to think that there are feeling and volition in the spinal marrow.

The terms incident and reflex are therefore full of meaning; whilst the terms afferent and efferent either convey no meaning at all, or an er-

roneous one. In this suggestion, the *Law of association* of the effects of excitement, its incident course, its modification and direction by the spinal marrow, its reflex course and destination, were unperceived.

How much, then, is conveyed or implied in that one word, *REFLEX*—incidence, reflection, appropriate combination, and destination! And how devoid of all meaning are the words *afferent* and *efferent*, not very modestly attempted to be substituted for it!

I beg my reader to study and compare the physiological movements in the acts of inspiration, with their pathological forms in asphyxia; the first are reflex, normal and beautifully appropriate; the second are, in every respect, abnormal and deranged.

My opponents are much disposed to speak of the class of reflex actions, in general terms, as known to Redi, Whytt, &c. This is another ill-chosen but deceptive phrase. The *reflex actions*, as I have always said, were spoken of by many previous physiologists; but the phrase I have adopted from the very beginning—for the very title of my first paper—was *reflex function*; and this expression, with its fulness of meaning, as applied to all the acts of ingestion and of egestion in the animal economy, had been used, could have been used, by no one; for as the idea of an incident excitor nerve, with its physiological relations, did not exist in anatomy, so the idea of a reflex function, with its anatomical relations, did not exist in physiology.—*London Lancet*.

THE URINE AND URINARY DISEASES.

[THE following notice of a little work, entitled, "*Lectures on the Urine, and on the Pathology, Diagnosis and Treatment of Urinary Diseases*," by Dr. John Aldridge, of Dublin, is from the last No. of the *Dublin Medical Journal*. It relates to a subject that is assuming no small share of importance among medical men.]

There is probably no fluid which has received so great a share of attention from physicians and chemists as the urine; the former endeavoring by its assistance to characterize certain diseases, producing in it either chemical or physical changes; and the latter endeavoring to separate from a complex liquid the proximate principles peculiar to organization, whether healthy or diseased. The analysis of urine forms an early epoch in the history of animal chemistry; and from the first experiments of Rouelle and Scheele, to the later researches of Simon and Liebig, every chemist of celebrity has added his contribution to the progressive elimination of its constituents; and yet, notwithstanding the rapid improvements in the apparatus for, and processes of organic chemistry, the perfect enunciation of the composition of this liquid is still a desideratum, and in the language of the most laborious of experimenters, Berzelius, "a complete analysis of urine has yet to be performed." Sufficient, however, is now known, both of its regular and abnormal constitution, to warrant us in drawing inferences and deducing practical rules for the medical practitioner; and it is to facilitate the study and

diagnosis of urinary diseases that our author has published this little work, which is a collection of his lectures, which have already appeared in the Dublin Hospital Gazette, and of some papers which appeared in the former series of the Dublin Medical Journal; the whole forming an abstract of what is of importance to be known on this subject, along with some peculiar views of his own. The matter is clearly and concisely arranged, and we strongly recommend the perusal of the work to all our readers, as its value depends not only on its chemical but its pathological research and observation.

In giving the constitution of healthy urine, as the starting point, Berzelius's analysis has been selected. This we regret, because it does not deal fairly with either chemistry or physic to present us with an analysis made thirty-seven years since, when manipulation was imperfect, and which analysis has served its turn by appearing in every essay and system of physiology and chemistry from that time since; and also because it never represented healthy urine; its specific gravity was undetermined; it deposited a cloud shortly after being passed, and with the exception of one set of experiments (Lehmann's), the quantity of solid matter is double the amount given by all the later analyses. Numerous analyses have been put forth lately by Marchand, Simon, Lehmann, Lecann and others, from which our author might, we think, have selected more advantageously; but it is quite possible, that Dr. Aldridge may not attach the same value to these analyses as to the older ones of the great father of analytical chemistry.

For comparison sake, we present the mean of six analyses of healthy urine by Simon, from which it will at once be seen how much lower are the proportions than that of Berzelius.

Spec. gravity, 1,022.5

Water - - - - -	961	Urea - - - - -	16.60
Solid matter - - - - -	39	Uric acid - - - - -	0.61
	—	Fixed salts - - - - -	8.27
		Organic matter and loss -	12.07

The fixed salts were chlorine, sulphuric and phosphoric acids, potash, soda, lime and magnesia.

The constitution of the organic or extractive matters of the urine is involved in obscurity; as yet, according to Dr. Aldridge, a portion is soluble in alcohol, and yields by fermentation, acetic acid, while the portion insoluble in that menstruum does not yield by fermentation any acetic acid. The soluble portion he believes to be an azotized substance, with a body analogous to sugar or dextrine; and he leans to the opinion that a form of sugar is present in healthy urine; and a few of Bouchardat's observations tend to the same conclusion.

Our author's directions for testing and examining urine we look upon as most judicious, and leading to delicate results, and a great desideratum to men in practice, whose attention has been little drawn to a subject which formed no part of their curriculum of education. The determination of the specific gravity of urine should be the first matter, as much informa-

tion is gained therefrom, and the proper course of investigation pointed out. The connection between density and quantity of solid matter is intimate, and may be deduced by Christison's formula, which is given at page 8, thus :

"Dr. Christison has calculated, that for every unit added to the density of water, taken as 1000, the quantity of solids in solution is equal to 2.33. Thus, if the specific gravity of a specimen of urine be 1010, we can find the amount of solid matter in solution by the following equation :—

$$2.33 + 10 = 23.30$$

If the density be 1020,

$$2.33 + 20 = 46.60$$

will afford you the sum of solid constituents."

This mode is much more correct than Becquerel's, in which the solid matters were always over-estimated.

For testing the presence of sugar, Dr. Aldridge recommends Moore's plan of boiling the urine with an equal volume of water of potash; if sugar be present, the liquor will assume a deep porter or beer color in proportion to the quantity. The simplicity and facility of applying this test are, we believe, its recommendations; for we do not look upon it as equal in delicacy to Trommer's test, which consists in evaporating urine, and treating the syrupy residue with anhydrous alcohol; dry carbonate of potash is then added, the solution agitated, and the layer of alkali allowed to subside; a solution of sulphate of copper is added to the liquid, and heat applied; if sugar be present, a yellow or yellowish brown turbidity is produced. The deposits in urine, so troublesome generally to distinguish, are easily so by the microscope, and the characters of each sediment are concisely given in this work.

The pages devoted to pathology are full of interest. We give the following passage from p. 52.

"I have told you that the urinary conduits are lined by epithelium; it is together with this epithelium, itself an albuminous exudation, that the solid elements of the urine permeate through the walls of the capillaries, which form the interior plexus; and it is from between the scales of the epithelium that these solid constituents are washed out by the watery current flowing from the Malpighian glandules. There is a disease, however, in which the albuminous element of the blood no longer exudes to form solid scales of epithelium, but continues liquid after its secretion, and dissolves in the water of the urine, or becomes organized into plastic lymph corpuscles, and either chokes up the trajet of the conduit, whose form they collectively assume, and presents to the eye the appearance of whitish or yellowish granulations, mottling the cortical substance, distending it, and thus producing pressure upon the tubuli uriniferi, which in time become absorbed, or, as frequently occurs at the commencement of the disease, distinct tubes of false membrane, miniature analogues of those sometimes expectorated in croup, are separated from the conduits and discharged with the urine. This is the form of renal disease usually named after Dr. Bright, and to which so much interest has been latterly attached."

There are some pathological views of disease, peculiar to our author, scattered through the book, which our limits do not allow us to enter upon. Under the lecture on treatment, oxalate of lime deposit is noticed, and the proper treatment pointed out. It is a symptom or change in the urine, more frequently occurring than was suspected, and has been often treated as gleet or prostatic disease, of course inefficaciously.

We again strongly recommend the perusal of this little work to all those who wish to treat an obscure class of afflictions, not upon mere symptoms, but on sound pathology, and the ordinary principles of therapeutics: and we congratulate our fellow-countryman on the additions which he has made to this most necessary department of practical medicine.

ARTIFICIAL SOMNAMBULISM IN PENNSYLVANIA.

To the Editor of the Boston Medical and Surgical Journal.

DEAR SIR,—I have recently received from Dr. Fahnestock, of Lancaster, Penn., the following communication designed for publication in the New York Journal of Medicine and the Collateral Sciences. As the next No. of my Journal does not appear until November, and as its pages are already engaged, I have thought I should best subserve the views of the writer, by causing its publication at an earlier date, and I therefore, with Dr. Fahnestock's consent, send it to you for that purpose. Dr. Fahnestock is well and favorably known to the profession in this country, from his surgical inventions, and able communications in the American Journal of the Medical Sciences, and other valuable publications.

Respectfully yours, CHARLES A. LEE,
New York, Sept. 8th, 1846. *Ed. N. Y. Jour. of Medicine.*

Lancaster, August 24th, 1846.

MR. EDITOR.—Dear Sir,—I send you a communication for your valuable Medical Journal—and as the case detailed is a novel one, some explanations may be necessary. My general views of the science with which it is connected, viz., artificial somnambulism (heretofore called mesmerism or animal magnetism) are given below; and it will be only necessary to add, that in making this communication to the world, I have acted from a sense of duty to the human family at large. I am well aware that there is still an infinite degree of prejudice in most minds against this greatly misrepresented science—but I can assure you that it is only excusable in the uninformed, who have not had a true exposition of the facts. I would, therefore, through the medium of your Journal, call the *serious attention* of the medical faculty to the facts below stated, which I am at any time willing to seal with my reputation.

Case of Mrs. ———, delivered of a son while in a state of artificial somnambulism, without pain to herself or injury to the child.—Before I enter upon the detail of this case, it will be necessary to make some preparatory remarks, which will embrace my views of the peculiar state or condition which has heretofore been denominated mesmerism, or

animal magnetism. It will, however, be impossible to enter here into a history of the state, or to speak of the many absurdities which have been attached to it by the friends of the science ; or to attempt an exposition of the odium and ridicule so lavishly bestowed upon it by the unsparing hands of its enemies. For these, and for a complete treatise upon the various phenomena belonging to the state, its production, its uses, and its importance in the philosophy of mind, I must refer the reader to my work upon the subject, which is now ready for publication.

It will be sufficient at this time to state :—

1. That I consider this condition to be identical with somnambulism, differing only in the manner in which it is produced ; somnambulism being the natural state, and this the artificial.

2. That this state is independent of magnetism, electricity, galvanism, sympathy, a nervous fluid, or anything of the kind.

3. That subjects are at all times independent of the so-called operator, in every sense of the word, when they are acquainted with the true nature of the state before they enter it.

4. That it is possible for *any persons* to throw themselves into, or out of, the state, even in an instant, when they have been taught how to effect it.

5. That subjects can be taught to throw, themselves, into this state, a single finger, a hand, an arm, or any part of the body, independent of the rest, by an act of their own will, at any time they may please, and relieve themselves at pleasure !

I have taught hundreds to do so—but it may not always be prudent for them to enter the state independent of an instructor—for *some*, upon entering the condition for the *first time*, become unconscious of all that is passing around them ; and if such persons were to throw themselves into it independent of any one, and had not consented or made up their minds before entering it, to hear or to speak to some one, it is most likely that when in it, and spoken to, they would not hear any one ; and in all probability would sleep for a longer or shorter time, without doing anything, and when they did awake would remember nothing, and scarcely know that they had been in it at all. Or they might get up and wander about, as is sometimes done by natural somnambulists, and unknowingly get into difficulties or meet with some accident, which might not be very agreeable when they awoke. It is, therefore, always better for those who wish to enter it, to place themselves under the care of some one ; and he who understands the nature of the state best, and has had the most experience in its management, is the best calculated for this purpose. When they have entered the state frequently, and have had the proper instructions while in it, the case is very different ; they are then able to move about with as much certainty and safety as if they were awake.

6. That when in this state they can hear, see, smell, taste, feel, &c., as well as when awake, whenever they are so disposed ; or they can hear or not, see or not, smell or not, taste or not, feel or not, contrary to the will of any one, whenever they may think proper.

7. That they cannot be made to do anything they are not willing to assent to, and are as much themselves as when awake.

These general views are conclusions drawn from facts gathered from upwards of a thousand cases under my immediate care. For a full exposition of my views, however, I must refer the reader to my work or lectures upon this subject.

CASE.—On the 5th of March, 1846, I was called upon to attend this lady in her fourth labor. I found her suffering severe labor pains, which were then fifteen or twenty minutes apart—the mouth of the uterus being rigid and but slightly dilated. Soon after I arrived, by my directions she threw herself into the somnambule state in a few seconds—and remained in the state about two hours, having during that time regular contractions of the uterus every fifteen minutes without feeling pain—the mouth of the uterus gradually dilating as the head of the child was forced into the pelvis. At the end of that time, as she thought there was no likelihood of a speedy delivery, she threw herself out of the state, and remained awake about two hours, having similar pains at like intervals. At the end of this time the pains became more frequent—she then threw herself into the state again, and as the contractions of the uterus were now more frequent, she made several experiments to ascertain her powers of feeling a pain or not, whenever she pleased, with perfect success.

She, being clairvoyant, then threw her mind to a distance, and while engaged looking at various objects of interest, passed through the rest of her labor without feeling the least pain—even the last and severe contractions of the uterus gave her no pain whatever. She was delivered of a large male child, about half an hour after she entered the state the second time. After the child was born, and the placenta was about being removed, considerable hemorrhage ensued—but was immediately arrested by frictions with the hand over the region of the uterus, until the contractions were renewed and the placenta expelled. The frictions over the uterus, which were necessary in this case to renew its contractions, gave her no pain whatever. The same, under ordinary circumstances, every physician knows full well, are scarcely to be endured.

About two years anterior to the above date, the above lady passed through the latter part of her labor in the same way, and is the eighth person who has done so under my care since that time.

When patients pass through labor while in this state, I have always found that they not only escape the pains, and have more strength during labor, but that the usual soreness, debility, &c., is not experienced by them when they awake; consequently, they are enabled to sit up and attend to their usual occupations much sooner than under ordinary circumstances; and I believe that all who may hereafter pass through this critical period while in this state, will also be—as these were—less subjected to diseases, &c., which are consequent upon delivery. I can, therefore, conceive of no better method of passing through parturition than this, and unhesitatingly recommend it to all—and more particularly to those who have had, or are likely to experience, much difficulty in their delivery.

The lady whose case I have just related, in her two first deliveries had

very protracted and difficult labors—and soon after her second confinement was suddenly seized with blindness of one eye; shortly after, the other also became affected; at the same time that she gradually lost the power of motion in her lower extremities, and was unable at the end of two years to move a limb, although the most skilful physicians had been employed during that period without effect. She was entirely restored soon after, in a short time under proper instructions, while in a state of artificial somnambulism—her sight and the use of her limbs returning simultaneously. She has, since her recovery, passed through her confinements with impunity while in the same state.

I deem this statement of facts due to suffering humanity, and hope that a science, so momentous in itself, will be hereafter properly studied and scientifically applied by the medical profession at large. The time has come when prejudice and false medical dignity must yield to facts. I, for one, feel prepared to do battle for the truth, and stem the current of future ridicule.

In conclusion, I would here briefly remark, that it is always better for those who are anxious to pass through labor while in a somnambulatory state, to practise the art of entering it before the time for delivery arrives. This should be done under competent instructions until they have acquired the power of throwing themselves into the state at pleasure. I have had several, however, do so while in labor, who had never been in the state anterior to that time—yet it is always better, and more easily accomplished, when they have acquired the art before, which should always be done when in their power.

WM. B. FAHNESTOCK, M.D.

[As the case above related by Dr. F. was of so remarkable a character, I requested him to furnish such corroborative references or statements, as the profession would expect, where such extraordinary occurrences were detailed, adding also some queries relating to the subject; to which I have received the following answers.—*Ed. New York Journal Med.*]

Lancaster, Sept. 7th, 1846.

MR. EDITOR,—My Dear Sir,—I received yours of the 29th of August, and would have replied to it sooner if I had not been anxious to give you all the evidence and satisfaction in my power. You can scarcely imagine the difficulty I have always experienced in obtaining corroborative evidence from those who are interested in this science. It is almost impossible to get one out of a thousand *or more*, who have been in this state under my care, to come before the public in any way. The ungentlemanly behavior of most sceptical persons towards subjects, has been the cause of all this difficulty, and they (the subjects) are unwilling to have their motives doubted, or to become a mark for the ridicule of those who frequently oppose matters of this kind, to gratify their own vanity—no matter how shallow and inconsiderate that arrogance may be. Were it not for this, I could give you case after case, and proof upon proof, that would fill a volume. As it is, I must do the best I can.

Since I received your letter, I visited the lady whose case I gave in my communication, and have obtained a reluctant consent to let her name go

forth to the world along with my description of her case. Her name is Mrs. Susan Herr, wife of Mr. Christian Herr, of Lampeter township, Lancaster county. She is a lady of exemplary character, and generally known throughout that section of country.

I have written to Newark, Delaware, where I delivered a course of *private lectures*, last fall, and had taught a physician of that place to throw himself into the so nambulic state. On one occasion he threw himself into the state before all the students in college, and had a tooth extracted—a very difficult operation, requiring the screw and many applications of forceps and other instruments. Under ordinary circumstances the pain (which the many *necessary* operations must have occasioned) I am convinced could not have been borne. When he awoke himself, he declared, before all the students, that he did not experience the least pain. The students present, I have no doubt, would testify to the truth of my remarks. I hope the doctor will consent to let me make use of his name. As soon as I hear from him, I will let you know the result.

I have also written to York, Pa., where by my instructions a physician of that place was enabled to throw his arm into the state at pleasure, independent of the rest of his body. I have not heard from him for some time, and cannot tell what progress he has made, but presume that he has at least applied it in his practice. The result of my inquiry will also be communicated to you as soon as I hear from him.

When I first began to investigate this subject, now about five years ago, the principal physicians of this place set their faces against it—and have not given much attention to the matter since. They have therefore not been present at any of my operations.

To answer all the questions which you have been pleased to put, as I should desire, would fill a volume, and I am fearful that it will be impossible to do justice to the subject in the brief space of a letter. You have asked me how persons are taught to throw themselves into this state? It would afford me great pleasure to give you this information perfectly, and I could do so in a short time if I were with you; but to do so upon paper I find cannot well be done, as the manner is often varied to suit the disposition of the subject. I will, however, endeavor to give you a general idea.

When persons are desirous of entering the state, I place them upon a chair where they may be at perfect ease. I then request them to close the eyes at once, and to remain perfectly calm, at the same time that they let the body lie perfectly still and relaxed. They are next instructed to throw their minds to some familiar place—it matters not where, so that they have been there before, and seem desirous of going there again even in thought. When they have thrown the mind to the place, or upon the desired object, I endeavor by speaking to them frequently to keep their mind upon it; viz., I usually request them to place themselves (in thought) close to the object they are endeavoring to see, as if they were really there, and urge them to keep the mind steady, or to form an image or picture of it in their mind, which they must then endeavor to see.

This must be persevered in for some time, and when they tire of one thing, or see nothing, they must be directed to others successively as above directed, until clairvoyance is induced. When this has been effected, the rest of the senses fall into the state at once or by slow degrees, often one after another as they are exercised—or sometimes only one during the first sitting. If their attention is divided, the difficulty of entering the state perfectly will be much increased, and the powers of each sense will be in proportion as that division is much or little. Almost every subject requires peculiar management, which can only be learned by experience or a knowledge of their character, &c. &c. Much patience and perseverance is often required to effect it; but if both be sufficiently exercised, the result will always be satisfactory—if not in one sitting, in *two or more*. I have succeeded in getting some into the state after twenty unsuccessful trials. There would, therefore, seem to be no limits to the possibility of entering this condition. This may be considered a direct answer to your question of “What proportion of persons are susceptible to mesmeric influence?”

To teach persons how to enter this state themselves, generally requires several lessons, or sittings, and the manner is varied to suit the individual. As a general rule, before they awake they must be requested to remember what they have seen, and what has taken place, &c., while they are in the state, or they will know nothing about it when they awake. They must be taught to know by practice when they are in the state, and how to awake when they are in it. To effect this, all that is necessary is to get them ready to do so, and they will awake in an instant, or at any time they set apart after making a resolution to do so. A knowledge of the true nature of the state and their powers therein, soon enables them to throw themselves into or out of the state at pleasure.

Clairvoyance is a subject which I would much rather not drag before the public; not because it is untrue, but so little understood, and seems to make all other things connected with it border on the marvellous. You have asked me whether I have ever had any positive proof of such a condition? In the same spirit of candor, I reply that I have, and could give you a thousand proofs. Yet it is not always infallible; that is, subjects do not always tell correctly. Their not seeing truly sometimes, is owing to their own imagination; because when persons are in a state of somnambulism, they can see what they imagine, as well as they can that which really exists, and therefore, if they are not very careful to look before they imagine, they may see falsely respecting what existed, but yet truly what they imagined. It is very difficult to tell when they do the one and when the other, and it is yet to be learned whether cultivation will produce perfection. I am inclined to believe that practice will much improve it, and have always observed that when the subjects were themselves interested in looking, the result was always more satisfactory; showing that it requires that they should not only guard against their imagination, but that it also requires their whole attention to see correctly. If they are indifferent or unwilling to look, their answers cannot be depended upon.

The extent to which I have employed somnambulism in diseases has been very considerable; but the state itself, or the mere being in that state, will produce no relief, if the mind of the subject is not made sensible of the fact, and placed upon the disease. This is an important point, and accounts for the many failures which have heretofore occurred. It is always necessary to get the patient to fix his mind upon his disease, and to make a resolution while in the state that it shall cease to exist when he awakes, &c. It is no matter whether the patient does this of his own accord, or by the advice of an instructor, so that it has been done properly. The effect will be the same, and always in proportion to the determination, &c., he may have exercised.

A very happy illustration of this fact took place last winter while I was in the city of Philadelphia. Dr. Childs, of that place, had been endeavoring to effect a cure in the case of a young lady whose foot (I think from some disease), was drawn or thrown completely round, in a direction precisely opposite to the natural condition of that member. He had been operating in the usual method for some time before I visited the city. He attended a course of my *private lectures*, which were delivered in Dr. Noble's parlors, where he stated the young lady's case to me, and requested to know whether I could suggest anything for her relief. I at once told him that if he would abandon the old method and divert her mind to the foot, and get her to make a resolution while in the state that the foot should assume and keep a natural position when she awoke, he could effect it in five minutes. On the following day he succeeded in getting her to do so, and brought the young lady round to Dr. Noble's the same evening, perfectly restored. She was then able to keep the foot in its natural position, and during the evening walked and ran about as well as ever, a blessing which she had been unable to exercise for a long time before. I have no doubt that Drs. Childs and Noble will take pleasure in confirming my statement. The case was notorious in that part of the city, and the cure by many was considered scarcely short of a miracle.

The diseases to which I have applied this matter are numerous. Those that are painful or of a nervous character, where there is no mechanical obstruction or organic destruction, are usually relieved in a short time, often at one sitting. Pain is always relieved as soon as the state is entered perfectly, and the mind directed to something else. Diseases from debility, contracted habits, melancholy, &c. &c., are often relieved in a short time.

I have performed most of the minor surgical operations upon persons while in this state, without inflicting pain. To do this, however, with the least possible chance of their feeling pain, it is necessary to divert the mind of the patients by directing them to look or listen to something at a distance, &c., until the operation be completed. If the mind of the patient cannot be directed, or after being cast away should be brought back again, they may then feel pain as well as when awake. This is particularly the case with some; others, however, who have practised the art more perfectly, have the power of feeling or not, whenever they please. Some will throw an arm or a finger, &c., only, into the state, and prick

or cut it with impunity, at the same time that they are awake in every other respect. But this is an endless subject, and I find that it will be impossible to give you more than an indistinct idea of its peculiarities or of its importance, short of a distinct article upon the various phenomena, &c., belonging to the state.

Very respectfully yours,

WM. B. FAHNESTOCK.

Lancaster, Sept. 10th, 1846.

MR. EDITOR.—Dear Sir,—I take pleasure in referring you to Dr. W. H. Kilgore, of York, Pa., as the physician to whom I referred in my last letter. In answer to a letter which I addressed him, he has stated several cases of interest, and in speaking of his own powers, he writes—“I am still able to put my arm into the state as I did when you were here—but, strange to say, I cannot do so with any other part of my body; why it is, I cannot say.”

You have here at least a confirmation of what I communicated in my last letter. His not being able to effect it in any other part of his body arises either from not following the instructions imparted to him, or a want of confidence in his powers. If he were to observe how he effects it in the arm, by pursuing the same plan with any other part of the body he would soon learn to accomplish it very readily.

In my letter to the doctor I requested him to give me the history of a case, which I feel much interested in. In answer, he simply says—“I have not seen Miss Koons (the little girl you speak of) for some time. When last I saw her, she could put her arm into and out of the state at pleasure.” He promises, however, to furnish me with a history of her case soon. In relating the operations which he has performed, he writes—“I have extracted a great many teeth, and will give you a history of those which are most distinctly before my recollection.

“Miss Fisher, the lady at Mr. Morris’s, for whom you extracted a tooth the first time you were here, called upon me and requested me to extract a tooth as you had done—stating, at the same time, that Mrs. Morris and a Mrs. Myers, from Gettysburg, requested that the operation should be performed at the residence of Mr. Morris. I told her that I would attend in half an hour. When I arrived she was already in the state—and having directed her mind to her father’s family, living in Ohio, I extracted the tooth without her showing the least symptom of pain—but rather of pleasure, for just as the tooth was rising from its socket, she laughed aloud. On my asking her what was wrong, she said she was so glad to see her father. When she awoke we could not persuade her the tooth was out until we had shown it to her. On being asked by Mrs. Myers to say positively if she had felt any pain, she declared before us all that she had not, and that she knew nothing about it. Mrs. Morris remarked, if it was not true, it would be the first time she ever knew Caroline to tell an untruth.

“Another case, of Mrs. C., who had long suffered from pain in a tooth which she was very anxious to have out; but owing to her teeth being very hard to extract, and always suffering so much after from hemor-

rhage and suppuration of the gums, she dreaded the operation—and to add to her misfortune, she was in her seventh month of pregnancy. But the pain became so severe that she had no rest day nor night. She spoke to Mrs. Kilgore, asking her if I could under the circumstances extract her tooth with safety, who unhesitatingly advised her to try. She then spoke to me, and I told her we could soon try, but I feared that her agitated state of mind would prevent her going into the state. She however was anxious to try the experiment, but made me first promise not to extract the tooth the first time she was in the state. Having sat with her about twenty minutes, she entered the state perfectly. I was then sorry I had made the promise not to take the tooth out, but so it was. I then asked her if I might take it out. She said no, you will hurt me—but I will come over to-morrow and again sleep; when you may extract it. I asked her if she could go into the state to-morrow? She replied, she could any time she wished after this. I then awoke her, and asked her if she remembered our conversation. She said she did not. When I told her, she said she would try and have her tooth out to-morrow, but was still fearful that she would feel pain. The next day she came, and after sitting ten minutes she fell into the state very soundly. I then proceeded to extract the tooth, which was the hindmost molar above, and very fast indeed; but with a firm grasp of the forceps and all the strength of my arm, it came out without her having any knowledge of it whatever. I then gave her some water, and after rinsing, I asked her if she would let me take out her tooth. She replied, No! her teeth were hard to extract, and it did not pain her at the time. I then told her that she should resolve or promise me that she would have no more pain in her gums, nor soreness of any kind. She promised she would not. When I awoke her, to her utmost astonishment she found her tooth was out. One week after, she told me she never felt the least pain of any kind after the tooth was out—and it was the only one, out of five extracted, that she had not suffered for one week after.

“The most interesting case I have ever had, was that of a young lady who came to me and wished me to put her to sleep (as she termed it) and extract a tooth, which I did without any difficulty. She returned in three days after, asking me to extract the root of another, the top of which was below the surface of the gum. On examining it, I found there were two roots, but decayed so much that they were separated from each other. I sat her down, and in a very short time she was in the state, when I commenced the operation, and after cutting the gum very deeply, I tried a small pair of forceps, but found I could not get hold of it. I again took the lancet to the gums, and after a second attempt succeeded in getting hold of the longest and extracted it; but the other was still in, and deeper in the gum. On account of the blood and the state of the gums, it was impossible to see the root, but I could feel it with an instrument. I had a pair of long and very small forceps, which I used, but without success. After all my attempts of more than five minutes, I concluded to wake her, and at some other time try it again—but having thought of a little instrument I had with a sharp point, I went down

stairs and got it, and after some minutes of gouging and levering raised it up so far as to take hold of it with the forceps, and out it came, to the astonishment of myself and Mr. T. T. Cochran, who was in the room at the time, and kept his eye very closely upon her. He said then, and will yet say, she never moved more than if she had been enjoying the most sound and natural sleep. She, after waking, said she did not feel the least pain, and did not know that I had been taking out her tooth."

In concluding this letter, the doctor remarks: "You can refer any one to me for any information I am able to give, and I can furnish proof of what I have asserted, at any time."

I have extracted the above minutely-detailed cases, to prove other assertions which I made in my letters to you. Were it necessary, I could furnish you with many of my own which are even more interesting.

The subject is an extensive one, and I fear that I have as yet but given you a very imperfect idea of its importance, not only as a remedial agent and preventive, but as a means of evading the consequent effects, not only of surgical operations, but of many affections, &c., which sometimes harass individuals through life.

I will here, still further to illustrate my views, extract from my work upon this subject, the concluding remarks upon operations, &c.

"The ability to throw any part of the body into this state, is extremely useful in cases of injury, &c., when the subject at will, by doing this, can relieve himself from pain which he otherwise would be obliged to suffer, until a physician or surgeon could be obtained, and the limb or part set and dressed according to the nature of the injury, &c., sustained. After an operation (or where an injury has been sustained), I always request the patient (while in the state), to wake up *with the exception of the affected part*, so that no pain may be experienced during the time necessary for its complete restoration. I shall conclude my remarks upon this interesting subject by saying, that in operating upon subjects while in this state, *it is not only* beneficial because the patient is not subjected to the pain usually experienced while under severe operations, but because the system under such circumstances receives no shock, the effects of which, every surgeon is fully aware, are more to be dreaded in their recovery than anything else. It is, therefore, self-evident that when a patient has passed through an operation without pain or a shock to his nervous system, his recovery must be more sudden, pleasant and certain, than when he has not only suffered the pain and the shock, but must necessarily feel the consequent irritation, &c., resulting on all such occasions."

I have not yet heard from Dr. ———, of Newark, Del. As soon as I do so, I will communicate the result.

Very respectfully yours,

WM. B. FAHNESTOCK.

 THE BOSTON MEDICAL AND SURGICAL JOURNAL.

 BOSTON, OCTOBER 7, 1846.

Hand Writing of Physicians.—As a fraternity, medical men are proverbial for their bad writing. No wonder the apothecaries cry out in their distress. There is a reason for their complaint, which is well expressed in the appended protest, cut from the Boston Mercantile Journal. Some of the manuscripts sent to us would puzzle Mr. Bristow, the chirographical professor, to determine whether they were written in English, Chinese, or Cherokee. Ludicrous, and sometimes grave mistakes, grow out of the impossibility of deciding upon the true meaning of scrawls—and the patient compositors, in printing offices, as a general rule, had rather take anything from a physician than his writing. Some unquestionably affect a shocking penmanship because it is a kind of mark of superiority—all great men, as it is generally understood, being careless in that respect. The following is the quotation alluded to.

"The style in which physicians' recipes are frequently written, demands attention; and I know of no better way to attract attention to the matter than through the press; and I hope the press generally will see fit to copy this article, for the benefit of the public. What I refer to, is the illegibility of prescriptions. Sometimes it is almost impossible for the most thoroughly practised apothecary to decipher a recipe; it is so badly written that there is great danger sometimes of mistaking one article for another; in which case life may be hazarded or destroyed.

"The community make apothecaries responsible for mistakes; a single one may blast his reputation, and consequently his business; more than this, a life may be sacrificed. And it is right that the apothecary should feel the full weight of his responsibility; for mishaps of this kind are no trivial affairs. But another may have a more weighty responsibility than the apothecary. The physician who writes so bad a recipe as to endanger a mistake, is more culpable than the druggist. Indeed a mistake might easily occur out of some prescriptions which have come under the observation of the writer of this article, where the whole blame should lie on the physician. I have seen, for instance, the word *ipecac.* so badly written that it was almost impossible to distinguish it from *opii*; and *vice versa*; where no one, perhaps, but the most experienced individual, could judge which was intended, and that not by the writing but from the nature of the recipe in which it was connected.

"Now these things ought not to be suffered; too heavy consequences are involved. A physician who cannot write, should not be allowed to practise; he should never be countenanced, either by the faculty or the community. He is tampering with life; he is destroying the lives of his patients and blasting the good character of the apothecary. *A man, therefore, who cannot write, should not practise; and a man who can write and only scrawls, should be regarded as committing a criminal offence.*

Medical Graduates of Pennsylvania University.—An alphabetical catalogue of all those who have received a medical degree in the Univer-

sity of Pennsylvania, from the organization of the medical department in 1768 to April 3d, 1846, making a pamphlet of 120 pages, besides appended matter of some pages more, has been issued. Medical honors were conferred, for the first time in America, June 21, 1768. There is much curious historical detail, in a few words, from the 103d to the 106th page. During the long period mentioned, of seventy-eight years, 5013 had diplomas granted them; viz., 28 received the degree of Bachelor of Medicine, and 4985 that of Doctor of Medicine. It is a singular fact, that only fourteen honorary degrees have been granted in the seventy-eight years, by the University, according to this official document. Some of the smaller medical institutions, whose charters are not soiled by the first impress of age, have conferred upon half a hundred people the honorary doctorates within the age of man!

Some odd kinds of names occur in this memorial of the past, so unlike any to which we are accustomed, that a few specimens are copied. For example: Dollarhide, Lockhead, Pennebaker, Pennepacker, Saltmarsh, Steptoe, Strawbridge, Stringfellow, Wagenseller, Bobo, Turnpenny, and, lastly, Dr. Turnipseed! Twenty-three Browns have graduated, four having the christian name of Thomas; twenty-two Davises, four being William and three Thomas; twenty-four Johnsons, three being Thomas and four William. Ninety-six names have the prefix of Mac. Sixty-two are Smiths, of which four are George, three Isaac, six James, seven John, five Samuel, four Thomas, and nine William—besides twenty-four Dr. Thomases—showing that enough of the same name are engaged in the same profession in the United States, to make as much confusion as that caused by one hundred towns and places in the Union being called Washington.

New Medical and Surgical Infirmary.—The increasing population of Boston demands corresponding charities to meet the necessities of the sick and infirm poor. A conviction that another infirmary was required, especially in the south part of the city, where no institution of the kind has ever existed, to our recollection, has led to the organization of one, which was opened last week, at No. 425 Washington St., opposite Essex St., for the reception of patients. Usually, these medical depots are only open at certain hours, on specified days; but according to the plan of this, it is to be always with an open door at all hours, so that those who are the least able to walk from a remote section of the town, will be certain of finding some one to give them the desired advice. John B. Walker, M.D., takes charge of the department of surgery, on Mondays, Wednesdays and Fridays. All operations will be performed gratuitously, when necessary, and bandages, apparatus, &c., freely given. C. E. Buckingham, M.D., E. H. Clarke, M.D., S. Kneeland, M.D., and W. Henry Thayer, M.D., will in turn be in attendance, in the management of the medical labors. These gentlemen are known to the profession of the city individually, as men of high moral worth, enterprise and industry, and they are deserving of no little commendation for thus early in professional life casting their bread upon the waters.

Fecundity in Florida.—A while since, a statistical paragraph was copied from an exchange Journal, that was quite astonishing on account of

the prolific nature of the females in the northern part of Maine. Below we append a no less surprising account of the fecundity of the South. It so happens that we who occupy the middle ground, sometimes have children, and sometimes not, but on the whole, population is waxing stronger. Such tremendous broods of heirs at law as characterize society north and south of this meridian, are, we believe, unknown in New England.

"Mrs. C., in Florida, has 24 children; 9 sons and 15 daughters. Six of her daughters are married, and one of them has 8 children, another 4, another 2, another 2, and another one. Mrs. S. has 6 daughters married, two of whom have 13 children each, two have 12 each, one has 9, and another 8. Mrs. F. has 14 children, the oldest of whom is only 15 years of age. Mrs. D. has 16 children, Mrs. N. has 23, Mrs. S. 11, Mrs. McC. 14, Mrs. M. 17, Mrs. T. 14. Mrs. G. has 9 children by her first husband, married a widower with 9, and has 9 by second marriage—27 in all."

Death of Benjamin Waterhouse, M.D.—The death of Dr. BENJAMIN WATERHOUSE is announced, at the patriarchal age of 92, at his residence in Cambridge. Although for many years past his age and infirmities have withheld him from the arena of medical affairs, yet during the active part of his life, very few physicians have held a more conspicuous place in the public observation.

Dr. Waterhouse was, we are informed, a native of Rhode Island, from which State he early repaired to Europe, in quest of a better medical education than the opportunities of this country at that time afforded. In London he became a pupil of the celebrated Dr. Fothergill, of whom he afterwards habitually spoke with great admiration, and to whose authority he often appealed in the course of his medical lectures. In 1783, being then a practitioner in Rhode Island, he was invited to assume the Professorship of the Theory and Practice of Medicine in Harvard University. This post he held for nearly thirty years, until the removal of the medical school from Cambridge to Boston. During a part of the same period he delivered an additional course of lectures on Natural History to the undergraduates of the College. Those who had the benefit of attending these lectures, will recollect them as distinguished by the animation of their delivery and the entertaining vivacity of their style. A lecture which he delivered about 1805 to the undergraduates, on the custom of smoking cigars, is supposed to have had great influence in whatever diminution of that practice was consequent on its publication.

Dr. Waterhouse held the pen of a ready writer, and figured as a controversialist and a politician during the exciting period from 1810 to 1815. A series of papers in the Boston Patriot, signed "An Independent Whig," were attributed to him. He was twice married, and the last time to a daughter of Thomas Lee, Esq., of Cambridge. He was an early and decided advocate for the introduction of the practice of vaccination into this country, and always esteemed it one of his proudest laurels that he was designated as the AMERICAN JENNER.

More Last Words of the St. Louis Medical Controversy.—An Appendix to the Supplement of the July No. of the St. Louis Medical and Surgical Journal, containing Dr. Forgeaud's reply to Dr. Reyburn, has been

received. These literary missiles fly so thickly of late, that it is no small effort to remember which side we have espoused! Of one fact, however, we are certain, viz., that all well-disposed people will regret that two honest men—members of an honorable profession—should be engaged in a controversy of this kind. Miss Edgeworth relates the story of a man and wife who separated because they could not agree about the length of a straw!

Progress of Mysticism.—A communication is in the Journal, the present week, by Dr. Fahnestock, which was received through Dr. Lee, Editor of the New York Medical Journal, who vouches for the respectability of the author. We must be permitted to say, however, that the idea of any man being possessed of such extraordinary ability as the writer represents himself to wield at pleasure, to say nothing of instructing others in the same craft, is to us the *ne plus ultra* of absurdity; and it is only on account of the good standing of Dr. F. as a scientific man and a physician, that his paper is admitted. But notwithstanding all the science he may have brought to bear upon this subject, and his higher pretensions to favorable notice, he must not be offended when we tell him that more strange developments in mesmerism may be purchased and seen in Boston, for a York shilling, than he has dreamed of in his discoveries.

Medical Miscellany.—The present is represented to have been the most sickly season in many places at the West, since 1836.—Mr. Whitney had a leg amputated by Dr. Cowles, of Marcellus, N. Y., in Sept, 1844, in such a manner, he contended in a suit before the court recently in session at Syracuse, that he had suffered much pain and loss of time ever since—and therefore he asked for damages. The jury, after being out four hours, returned a verdict in his favor of \$500. What surgeon in New York State, after this and some previous decisions, dare perform an operation?—A woman is said to be living in the city of Moscow, who is 157 years old.—A Mrs. Strutt, in England, swallowed a live wasp, which stung her throat in being forced down, and yet was brought up alive, by an emetic.—The *starving cure* is becoming popular in Germany. The patients are kept from food five or six days at a time, occasionally. In Boston, those undergoing the process, like the horse that lived on shavings, always die on the day they are cured.—Bilious and intermittent fevers have been prevalent in Mobile and the country about.

MARRIED.—In Boston, Dr. Frederick W. Sumner, to Miss S. W. McFarland.—Henry C. Preston, M.D., of Hartford, Ct., to Miss L. Green.—Jeremiah Kins, M.D., of Norwich, Ct., to Miss J. A. K. Ladd.—At Troy, N. Y., Charles E. Bainbridge, M.D., to Miss S. F. Taft.—Dr. George W. Pratt, of Corning, N. J., to Miss H. M. Hoyt.

DIED.—At Cambridge, Mass., Dr. Benjamin Waterhouse, 92.—In Wheeling, Virg., Dr. Staunton, by suicide.—In St. Louis, Dr. William J. Welch.—At Nauvoo, the Mormon city, Dr. Greiger.

Report of Deaths in Boston—for the week ending Oct. 3rd, 45.—Males, 20, females, 25. Stillborn, 7. Of consumption, 6—dropsy, 2—dysentery, 2—typhus fever, 2—old age, 2—convulsions, 3—hooping cough, 2—disease of the chest, 1—cholera infantum, 1—dropsy on the brain, 2—slow fever, 1—child-bed, 1—marasmus, 1—lung fever, 2—disease of the kidneys, 2—disease of the heart, 1—sudden, 1—bilious fever, 1—disease of the bowels, 5—drowned, 1—measles, 1—infantile, 2—asthma, 1—teething, 1—croup, 1.

Under 5 years, 21—between 5 and 20 years, 3—between 20 and 40 years, 13—between 40 and 60 years, 2—over 60 years, 6.

Electro-magnetism as a Remedial Agent.—Dr. Prosch, of Hamburg, has applied the electro-magnet in a variety of nervous affections and disorders of the muscles. He gives the result of his treatment in 53 cases. The average duration of the sittings was 15 minutes. The following table presents a condensed view of the cases referred to.

DISEASES.	Duration of Disease.	No. Treated.	Cures.	Much improved.	Not cured.	No. times electrified.
False Ankylosis, - - - - -	Severl mos	1		1		12
Atrophy of Limbs, - - - - -	Congenital	2			2	74 and 25
Peculiar Disorder of Vision, - - - - -	"	1		1		10
" " Speech, - - - - -	10 years	1		1		17
Stammering, - - - - -	Congenital	1		1		9
Deafness, - - - - -	Many years	2	1	2		20 and 50
Peculiar Sensitiveness of Face, - - - - -	5 years	1	1			25
Anæsthesia of Skin, - - - - -	1 year	1		1		16
Feeling of Dryness in Mouth and Weakness of Boccinator Muscle, - - - - -	Severl wks	1	1			9
Cramp proceeding from Nerve Vagus, - - - - -	For years	1		1		12
Pain of Face, - - - - -	1 and 4 y'rs	3		2		3-16
Twitchings of Neck and Face, - - - - -	For years	2		2		20-74
Cramp in Writing, - - - - -	14 years	1		1		33
Weakness and Trembling of Hand in writing, - - - - -	3 months	1		1		13
Trembling of Arms, - - - - -	3 years	1		1		12
Weakness of Arms, after fall, blow, &c - - - - -	Over a year	4	1	2	1	9-27
Peculiar Tingling of Arm, - - - - -	7 months	1		1		26
Rheumatism of Muscle and Facia, - - - - -	Various	11	7	3	1	2-66
" " Knee, - - - - -	Months	1		1		16
Rheumatic Contraction of Hip Joint, - - - - -	For years	3		3		4-13
" " Pain in Hip, - - - - -	1 year	2	1	1		5-18
Rheumatic Paralysis, - - - - -	1 year	2	1	1		2-41
Gout, - - - - -	For years	1		1		31
Disease of Skin, - - - - -	For years	3		3		42-52
Nocturnal Discharge of Urine, - - - - -	Fr childh'd	3		3		6-14
Pain in region of Urethra and Kidney, - - - - -	2 & 5 years	2	1	1		Often.

Deglutition excited by dashing Cold Water on the Face—Note addressed to Dr. Marshall Hall.—You will remember my communication to you, in which I described a novel mode of making patients swallow, which you deemed worthy of publication in the *Lancet* (December, 1842, page 437), and, afterwards, in the appendix to your new *Memoirs*, 1843, which I had the honor of illustrating.

On Monday last, the 3rd inst., a further most felicitous illustration of that action occurred to me. A poor creature, who had attempted self-destruction by cutting his throat, was rapidly sinking from loss of blood. His pulse could not be felt, and his heart scarcely; the respiration also was exceedingly slow and feeble. It was desirable to administer stimulants, and his mouth was accordingly filled with spirits and water. But the patient was unconscious, and therefore did not swallow. Cold water was dashed in his face for the purpose of making him swallow, when the contents of the mouth were instantly gulped down. The effect of the stimulant was soon evinced by the state of the circulation. By this application, then, of your discovery, we not only have the means of provoking respiration in the half-asphyxiated, but also of administering stimulants at a moment of vital importance, by exciting deglutition.—*London Lancet.*